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(71) Applicant

BKL Extrusions Limited

(Incorporated in the United Kingdom)

Kings Norton Business Centre, Kings Norton,  
Birmingham, B30 3HF, United Kingdom

(72) Inventors

John Thomas Rogers

Colin Martin White

Colin Malcolm Brooke

(74) Agent and/or Address for Service

B. Thorpe, G.M. Dodd, P.L. Drury

GKN plc, Group Patents & Licensing Dept

P.O. Box 55, Ipsley House, Ipsley Church Lane,

Redditch, Worcestershire, B98 0TL, United Kingdom

(54) Glazing bead

(57) An extruded glazing bead (20), for retaining a glazing panel (19) to a frame member (10) of a window or door, has its portion (24) which is accessible when the bead is installed designed to be insufficiently strong to be engaged by a tool for an unauthorised person to lever the glazing bead out of engagement with the frame member. The accessible portion may be of thinner cross-section than the rest of the glazing bead, or may be joined to the rest of the glazing bead by a portion (29) defining a line of weakness at which the accessible portion of the bead will break off.

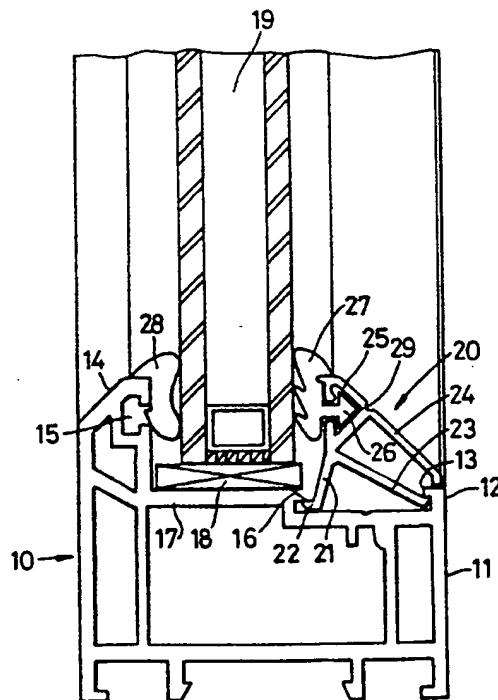


Fig. 1

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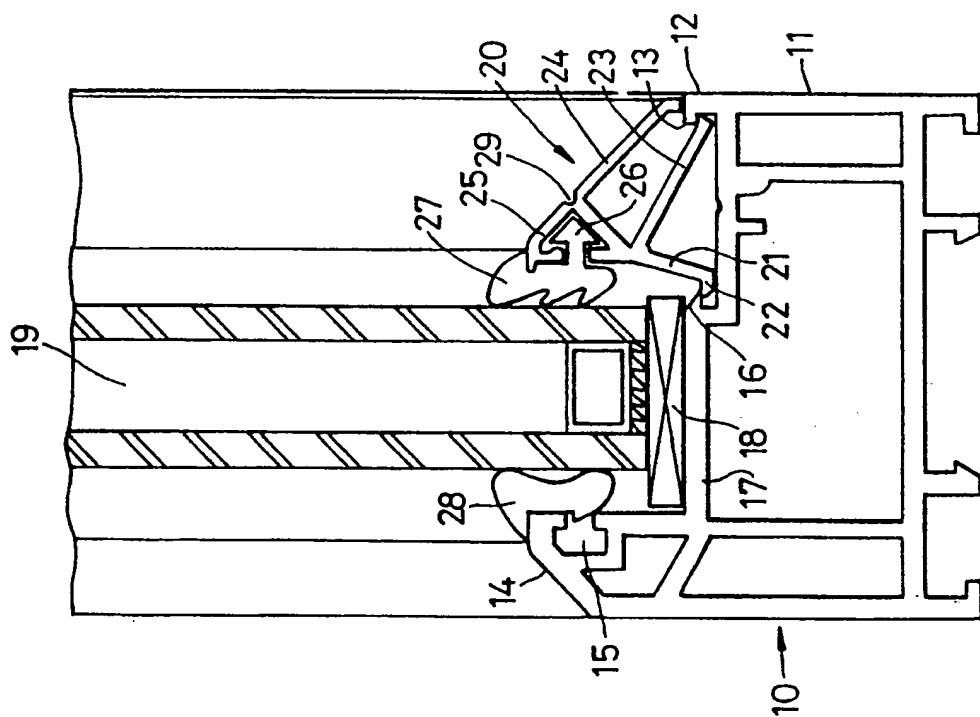


Fig. 1

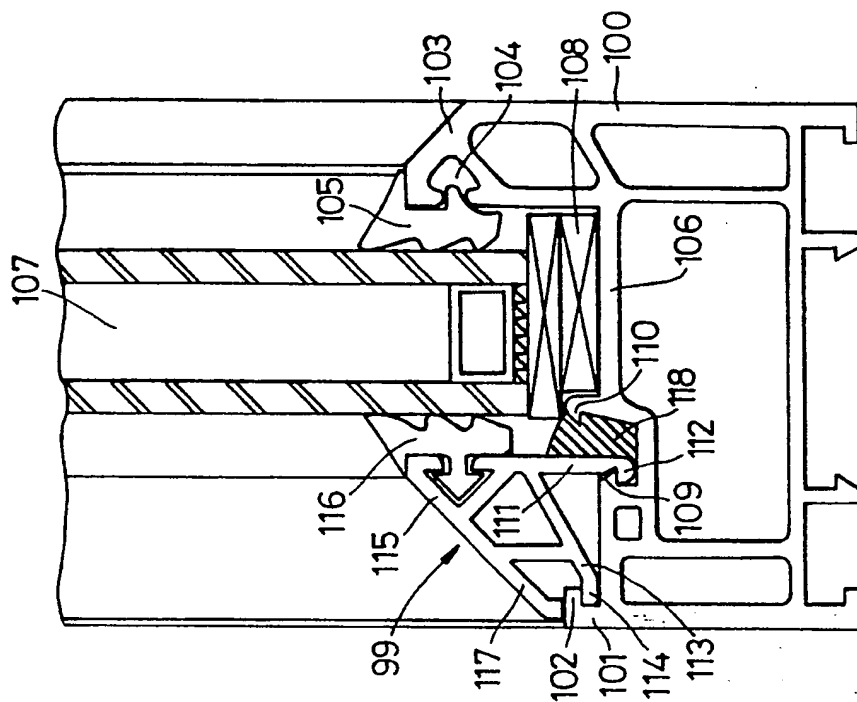


Fig. 2

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## GLAZING BEAD

This invention relates to a glazing bead, that is a member which is engagable with a frame member of a window or door to retain a glazing panel thereto. The glazing bead to which the invention relates is an extrusion, (of  
5 a metal, e.g. an aluminium alloy, or a plastics material, e.g. U.P.V.C.) for use with a frame member which is also an extrusion and has a cross-sectional shape with which the glazing bead interfits to be held thereto.

One aspect of the design of modern window systems  
10 incorporating extruded frame members, to which attention is increasingly being paid, is that of security. If the glazing bead is fitted at the exterior of the building in which a window is installed, it has in some cases been possible to attack the glazing bead with a suitable tool  
15 and lever it out of engagement with the frame member. This then permits removal of the glazing panel, and thus unauthorised access to the building.

It is the object of the present invention to provide enhanced security by rendering such glazing bead removal  
20 more difficult.

According to one aspect of the invention, we provide a glazing bead, for engagement with a window or door frame member to retain a glazing panel to the frame member, comprising an extrusion having a first portion  
25 engagable with the frame member to be held thereto and which is inaccessible when installed, and a second portion which, when installed, is accessible but is insufficiently strong to give purchase to a tool to cause

incorrect disengagement of the first portion of the glazing bead from the frame member.

When we refer to incorrect disengagement of the glazing bead from the frame member, we mean disengagement in a manner other than that in which disengagement is intended to be carried out by an authorised person who has full access to the window. In many designs of window assembly, including the embodiments particularly described hereafter, a wedge gasket inserted between a part of the frame member and the glazing panel, at the side of the glazing panel towards the interior of the building, is used to ensure tight engagement between the glazing bead and frame member. An authorised person, having access to such wedge gasket, can remove it so that the glazing bead can easily be disengaged from the frame member. The unauthorised person, however, not having access to the interior of the building and thus not being able to remove the wedge gasket, would have to exert a much greater force on the glazing bead to cause its disengagement from the frame member. With a glazing bead according to the invention, whose accessible portion is insufficiently strong to withstand such greater force, the unauthorised removal of the glazing bead is rendered much more difficult.

The invention also provides a window or door assembly comprising a frame member including an abutment portion; a glazing bead according to the invention as above set forth having its first portion engaged with the frame member; and a glazing panel having a portion received between the glazing bead and the abutment portion of the frame member. Preferably, such an assembly also comprises a resilient wedge gasket disposed between the abutment portion of the frame member and the

glazing panel, and the glazing bead has formations on its first portion held in engagement with co-operating formations on the frame member by force exerted on the glazing bead by the wedge gasket through the glazing panel. Preferably the assembly also comprises a resilient insert disposed between facing parts of the glazing bead and the frame member to hold said formations thereof in engagement.

The invention will now be described by way of example with reference to the accompanying drawings, of which:-

Figure 1 is a section through part of a window assembly incorporating a glazing bead according to the invention;

Figure 2 is a section as Figure 1, through a further embodiment of window assembly incorporating a glazing bead according to the invention.

Referring firstly to Figure 1, the illustrated part of a window assembly comprises a frame member indicated generally at 10, which is an extrusion of hollow configuration with its interior divided into a number of cells. It has a front portion 11 which when installed is at the exterior of a building, with an upstand 12 having a rearwardly extending lip 13. Towards the interior of the building when installed, the frame member has an upstanding abutment portion 14 which defines a forwardly facing undercut groove 15. There is also a forwardly extending projection 16 facing the lip 13. Between the projection 16 and the abutment portion 14, the frame member affords a flat support portion 17 for supporting, with the intermediary of a packer 18, a glazing panel

which in the illustrated embodiment is a sealed double glazed panel 19.

The window assembly further comprises a glazing bead indicated generally at 20, for engagement with the frame member 10 to retain the glazing panel 19 to the frame member. The glazing bead 20 comprises an extrusion of the same material as the frame member 10. The glazing bead 20 has a first portion engageable with the frame member 20 to be held thereto and which is inaccessible when installed. The first portion is arranged to interfit with the frame member and comprises a downwardly extending leg 21 terminating in a rearwardly extending foot 22, and a forwardly extending downwardly inclined leg 23. The glazing bead 20 further comprises a second portion which, when installed, is accessible in the installed window, comprising a forwardly and downwardly inclined leg 24 which just meets the top of the upstand 12 on the frame member. A part 25 of the glazing bead extends in the direction opposite the leg 24, to define an undercut groove 26 to hold a retaining portion of a captive elastomeric gasket 27.

The window assembly is completed by an elastomeric resilient wedge gasket 28 disposed between the abutment portion 14 of the frame member and the rear side of the glazing panel 19. Part of the wedge gasket 28 engages the undercut groove 15. The wedge gasket 28 is arranged to exert force on the glazing bead 20 through the panel 19 to hold the formations on the first portion of the bead 20 in engagement with the co-operating formations on the frame member 10.

The manner in which a window as shown in Figure 1 is assembled is that the glazing panel 19 is placed in its

frame, and supported in the desired position by appropriate use of packers as 18 between the periphery of the panel and the surrounding frame members. With the captive gasket 27 held to the glazing bead 20, the  
5 glazing bead is held at an angle and introduced to the frame member so that its foot 22 engages beneath the projection 16 of the frame member. The glazing bead is then returned to the illustrated orientation, so that the free end of its leg 23 lies adjacent the lip 13. The  
10 final operation of assembly is to insert the wedge gasket 28, which pushes the panel 19 and glazing bead 20 forwardly, and causes the free end of leg 23 of the glazing bead to engage beneath the rearwardly extending lip 13. At the same time, the foot 22 of the glazing  
15 bead remains engaged beneath the projection 16.

If it is desired to remove the glazing panel from the window, the reverse of the above sequence of operations has to be followed. Firstly, the wedge gasket 28 has to be removed. This gives sufficient freedom to  
20 the glazing bead member for it readily to be disengaged from the frame member. If the wedge gasket 28 is not firstly removed, it is not impossible to remove the glazing bead but a very considerable force has to be exerted thereon, e.g. by engaging a tool such as a screw-  
25 driver between the accessible leg 24 of the glazing bead and the upstand 12 of the frame member and levering the glazing bead to compress the gaskets 27, 28.

According to the present invention, the leg 24 of the glazing bead is made insufficiently strong to give  
30 purchase to a tool for such a levering action on the glazing bead which might cause incorrect disengagement of the first portion of the glazing bead 20 from the frame member 10. Thus, the leg 24 may be thinner than the rest

of the glazing bead so that it deforms when subjected to such treatment. Preferably, however, the cross-section of the glazing bead includes a notch or recess 29 defining a line of weakness so that the leg 24 will break off leaving nothing readily engagable by a levering tool. Thus, unauthorised removal of the glazing bead by someone who does not have access to the interior of the building firstly to remove the wedge gasket 28 is made much more difficult, and security is enhanced.

Referring now to Figure 2 of the drawings, this shows part of a window assembly the principle of whose construction is analogous to that of Figure 1 but which differs in detail. It comprises a frame member 100 with an upstand 101 terminating in a rearwardly extending lip 102 at the part of the frame member which is to the exterior of a building in which it is to be installed. At the interior of the building, the frame member has an abutment portion 103 defining an undercut groove 104 to be partly engaged by a wedge gasket 105 having the same function as the gasket 28. A part 106 of the frame member supports a glazing panel 107 with the interposition of suitable packing 108. Forwardly of the part 106, the frame member has a rearwardly extending lug 109, and an upward projection with a forwardly extending lug 110.

A glazing bead 99 comprises an extrusion and has a first portion which is engagable with the frame member 100 to be held thereto and which is inaccessible when installed. The first portion comprises a vertical leg 111 terminating in a foot 112, and an inclined leg 113 terminating in a foot 114. The foot 112 is engagable beneath the lug 109 on the frame member, and the foot 114 beneath the lip 102 of the frame member. The glazing



bead 99 also comprises a second portion which, when installed, is accessible but is insufficiently strong to give purchase to a tool to cause incorrect disengagement of the first portion of the bead 99 from the frame member 100. The second portion comprises a leg 117 which abuts the upper surface of the lip 102. The glazing bead further comprises a portion 115 defining an undercut groove to receive a captive gasket 116.

The frame, glazing panel and glazing bead member are assembled in the same sequence as above described in relation to the embodiment of Figure 1. The final operation of such assembly is to insert the wedge gasket 105, which renders the glazing bead difficult to remove by virtue of its mode of engagement with the frame member. The accessible leg 117 of the glazing bead is made thin or otherwise, as above described, insufficiently strong to afford purchase to a screwdriver for incorrect glazing bead removal.

Figure 2 also illustrates a further provision which enhances the security of attachment of the glazing bead to the frame member. A resilient, e.g. elastomeric, insert 118 is provided between the leg 111 of the glazing bead and the projection and lug 110 of the frame member. The insert 118 can be fitted, from the outside of the building, after the glazing bead has been engaged with the frame member but before the wedge gasket 105 has been fitted. The insert 118 is, thus, disposed between facing parts of the bead 99 and the frame member 100 to hold formations thereof in engagement. The presence of the insert 118 renders the glazing bead even more difficult to remove. For authorised removal of the glazing bead, the panel 107 has to be moved rearwardly after removal of

the wedge gasket 105, to permit access to the insert 118 for it to be removed prior to glazing bead removal.

5       The frame member and glazing bead extrusions in the embodiments above described may be of plastics or metal: the principle of the invention is applicable to window or door frame constructions of either material. In particular, a glazing bead of metal may be used with a frame member which is a plastics extrusion, to provide maximum security.

## CLAIMS

1. A glazing bead, for engagement with a window or door frame member to retain a glazing panel to the frame member, the glazing bead comprising an extrusion having a first portion engagable with the frame member to be held thereto and which is inaccessible when installed, and a second portion which, when installed, is accessible but is insufficiently strong to give purchase to a tool to cause incorrect disengagement of the first portion of the glazing bead from the frame member.
2. A glazing bead according to Claim 1 wherein said accessible portion is of thinner cross-section than the rest of the glazing bead.
3. A glazing bead according to Claim 1 wherein said accessible portion is connected to the rest of the glazing bead by a portion defining a line of weakness for breakage of the accessible portion.
4. A window or door assembly comprising  
a frame member including an abutment portion;  
a glazing bead according to any one of the preceding claims having its first portion engaged with the frame member; and  
a glazing panel having a portion received between the glazing bead and the abutment portion of the frame member.
5. An assembly according to Claim 4, comprising a resilient wedge gasket disposed between the abutment portion of the frame member and the glazing panel, and wherein the glazing bead has formations on its first

portion held in engagement with co-operating formations on the frame member by force exerted on the glazing bead by the wedge gasket through the glazing panel.

5 6. An assembly according to Claim 5 further comprising a resilient insert disposed between facing parts of the glazing bead and the frame member to hold formations thereof in engagement.

7. A window or door assembly comprising  
a frame member including an abutment portion;  
10 a glazing bead comprising an extrusion having a portion engaged with the frame member to hold it thereto;  
a glazing panel having a portion received between the glazing bead and the abutment portion of the frame member;  
15 a resilient wedge gasket disposed between the abutment portion of the frame member and the glazing panel, so as to urge the glazing panel and glazing bead away from the abutment portion of the frame member and thereby to urge inter-engaging formations of the frame  
20 member and said portion of the glazing bead into firm engagement;

and a resilient insert disposed between facing parts of the glazing bead and the frame member to hold said formations thereof in engagement with one another.

25 8. A glazing bead, or a window or door assembly, substantially as hereinbefore described with reference to and as shown in Figure 1 or Figure 2 of the accompanying drawings.